CLAIMS

1. An ink for ink jet comprising:
a water-soluble dye having an anionic dissociable group;
at least one of water and a water-soluble organic solvent; and
at least one kind of cationic polymer capable of forming an ion pair with the anionic dissociable group.

2. An ink for ink jet according to claim 1, wherein the cationic polymer is a water-soluble polymer.

3. A method for producing an ink for ink jet, the method comprising:
mixing in advance: a water-soluble dye having an anionic dissociable group; and at least one cationic polymer capable of forming an ion pair with the anionic dissociable group, in water, to form a resulting salt; and
preparing the ink after desalting the resulting salt.

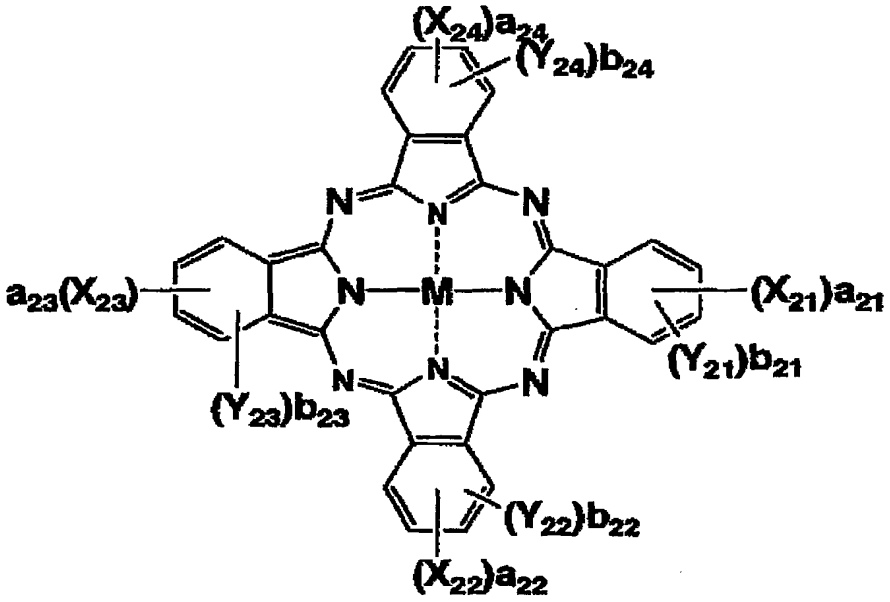
4. An ink for ink jet according to claim 1 or 2, wherein the ink is provided by:
mixing in advance: said at least one kind of cationic polymer; and the water-soluble dye having the anionic dissociable group, in water, to form a resulting salt; and
preparing the ink after desalting the resulting salt.

5. An ink for ink jet according to any one of claims 1, 2 and 4,
wherein said at least one kind of cationic polymer has a cation derived from a nitrogen atom.

6. An ink for ink jet according to any one of claims 1, 2, 4 and 5, wherein the water-soluble dye comprises at least one of compounds represented by general formulas (1) to (4):
general formula (1):

$(A_{11}\text{-}N{=}N\text{-}B_{11})_n\text{-}L$

in the general formula (1), A_{11} and B_{11} each independently represents a heterocyclic group that may be substituted; n represents 1 or 2; L represents a substituent bonded in an arbitrary position with one of A_{11} and B_{11}, and represents a hydrogen atom in case n = 1, a single bond or a divalent connecting group in case n = 2;
general formula (2):



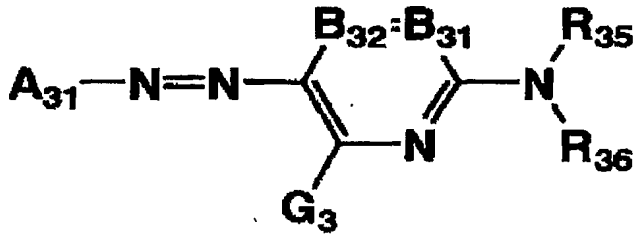
In the general formula (2), X_{21}, X_{22}, X_{23} and X_{24} each independently represents -SO-Z_2, -SO_2-Z_2, -$SO_2NR_{21}R_{22}$, a sulfo group, -$CONR_{21}R_{22}$, or -$COOR_{21}$; Z_2 each independently represents a substituted or non-substituted alkyl group, a substituted or non-substituted cycloalkyl group, a substituted or non-substituted alkenyl group, a substituted or non-substituted aralkyl group, a substituted or non-substituted aryl group or a substituted or non-substituted heterocyclic group; and R_{21} and R_{22} each independently represents a hydrogen atom, a substituted or non-substituted alkyl group, a substituted or non-substituted cycloalkyl group, a substituted or non-substituted alkenyl group, a substituted or non-substituted aralkyl group, a substituted or non-substituted aryl group or a substituted or non-substituted heterocyclic group;

Y_{21}, Y_{22}, Y_{23} and Y_{24} each independently represents a monovalent substituent;

a_{21} to a_{24} and b_{21} to b_{24} represent numbers of substituents respectively on X_{21} to X_{24} and Y_{21} to Y_{24}; a_{21} to a_{24} each independently represents a number of 0 to 4, and at least one of a_{21} to a_{24} is not zero; b_{21} to b_{24} each independently represents a number of 0 to 4; and, in case any of a_{21} to a_{24} and b_{21} to b_{24} represents a number equal to or larger than 2, plural ones in X_{21} to X_{24} and Y_{21} to Y_{24} may be mutually same or different;

M represents a hydrogen atom, a metal atom, an oxide of the metal atom, a hydroxide of the metal atom, or a halide of the metal atom;

general formula (3):



in the general formula (3), A_{31} represents a 5-membered heterocyclic ring;

B_{31} and B_{32} each represents =CR_{31}- or -CR_{32}=, or either one represents a nitrogen atom while the other one represents =CR_{31}- or -CR_{32}=;

R_{35} and R_{36} each independently represents a hydrogen atom, an aliphatic group, an aromatic group, a heterocyclic group, an acyl group, an alkoxycarbonyl group, an aryloxycarbonyl group, a carbamoyl group, an alkyl- or arylsulfonyl group, or a sulfamoyl group, each of which may further have a substituent;

G_3, R_{31} and R_{32} each independently represent a hydrogen atom, a halogen atom, an aliphatic group, an aromatic group, a heterocyclic group, a cyano group, a carboxyl group, a carbamoyl group, an alkoxycarbonyl group, an aryloxycarbonyl group, a heterocyclic oxycarbonyl group, an acyl group, a hydroxyl group, an alkoxy group, an aryloxy group, a heterocyclic oxy group, a silyloxy group, an acyloxy group, a carbamoyloxy group, an alkoxycarbonyloxy group, an aryloxycarbonyloxy group, an amino group (including an arylamino group and a heterocyclic amino group), an acylamino group, an ureido group, a sulfamoylamino group, an alkoxycarbonylamino group, an aryloxycarbonylamino group, an alkyl- or aryl sulfonylamino group, a heterocyclic sulfonylamino group, a nitro group, an alkyl- or arylthio group, an alkyl- or arylsulfonyl group, a heterocyclic sulfonyl group, an alkyl- or arylsulfinyl group, a heterocyclic sulfinyl group, a sulfamoyl group, a sulfo group or a heterocyclic thio group, each of which may be further substituted;

R_{31} and R_{35}, or R_{35} and R_{36} may be bonded to form a 5- or 6-membered ring; and

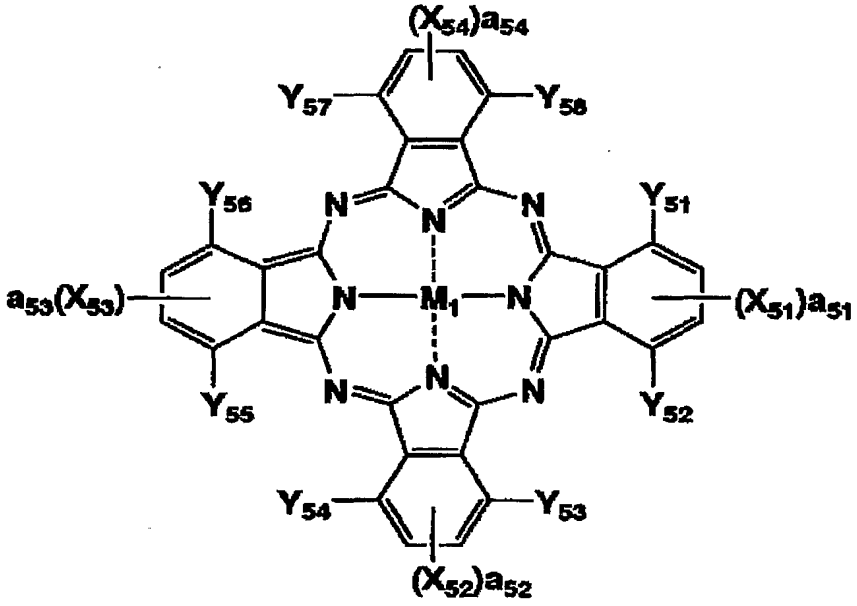
general formula (4):

$$A_{41}\text{-}N{=}N\text{-}B_{41}\text{-}N{=}N\text{-}C_{41}$$

in the general formula (4), A_{41}, B_{41} and C_{41} each independently represents an aromatic group or a heterocyclic group, each of which may be further substituted.

7. An ink for ink jet according to any one of claims 1, 2, 4, 5 and 6, wherein the dye represented by the general formula (2) is a dye represented by general formula (5):

general formula (5):



in the general formula (5), X_{51} to X_{54}, Y_{51} to Y_{58} and M_1 respectively have same meanings as X_{21} to X_{24}, Y_{21} to Y_{24} and M in the general formula (2); and a_{41} to a_{54} each independently represents an integer 1 or 2.

8. An ink set for ink jet comprising an ink according to any one of claims 1, 2, 4, 5, 6 and 7.

9. An ink jet recording method comprising executing an image recording on one of a plain paper and an ink jet exclusive paper with an ink jet printer by using at least one of: an ink according to any one of claims 1, 2, 4, 5, 6 and 7; and an ink set for ink jet according to claim 8.